Car Entertainment System **NA200R**

Service Manual



CONTENTS

Version 1.1

Nakamichi®

Product Information

General
Power Supply: 12V DC (10.5-14.4V), negative ground
Fuse: 15A
Suitable Speaker Impedance: 4 -8Ω
Aux-In level: 500mV

Audio Section
Maximum Power Output: Mosfet 50W x 4 Channels
Continous Power Output: 24W x 4 RMS
Pre-AMP Output Voltage: 5 V
Subwoofer Output Voltage: 5 V（Subwoof Vol Max=12)

FM tuner section
Frequency Range: 87.5 - 108MHz
Usable Sensitivity: Better than 15dB at S/N 30dB

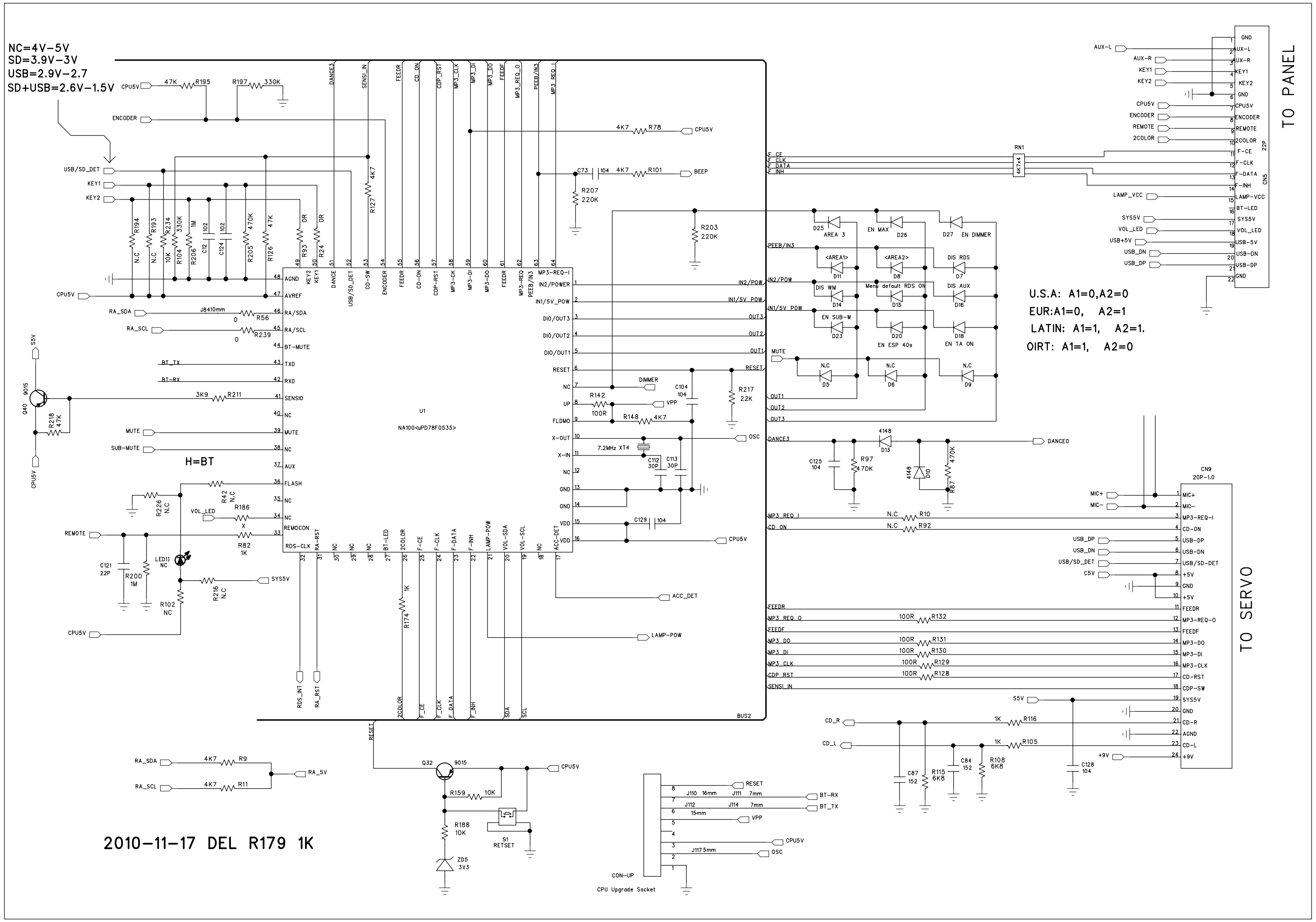
AM tuner section
Frequency Range: 522 - 1620KHz
Usable Sensitivity: Better than 45dB at S/N 26dB

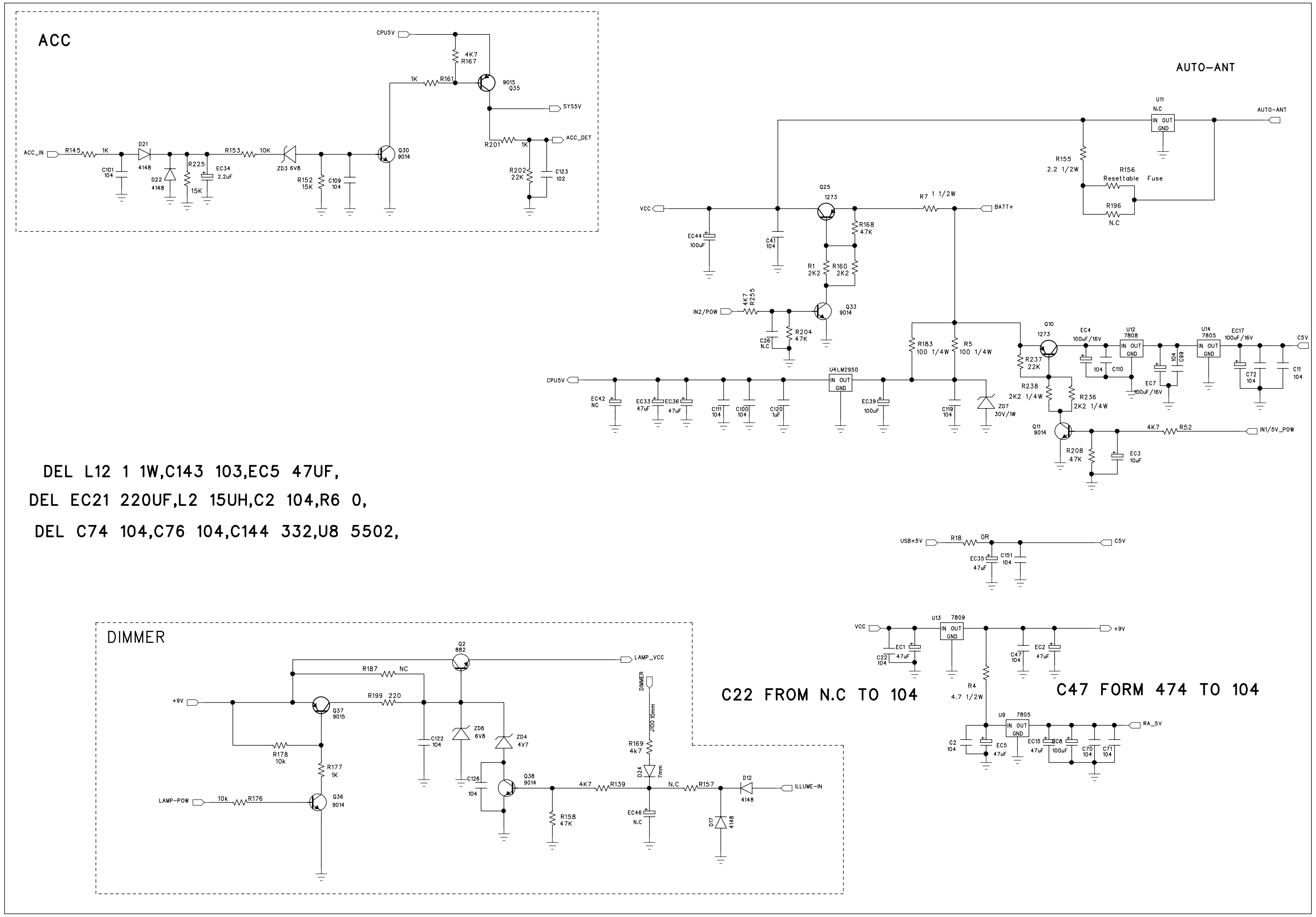
USB devices
USB Flash Memory: USB 1.1 & 2.0 Compatible

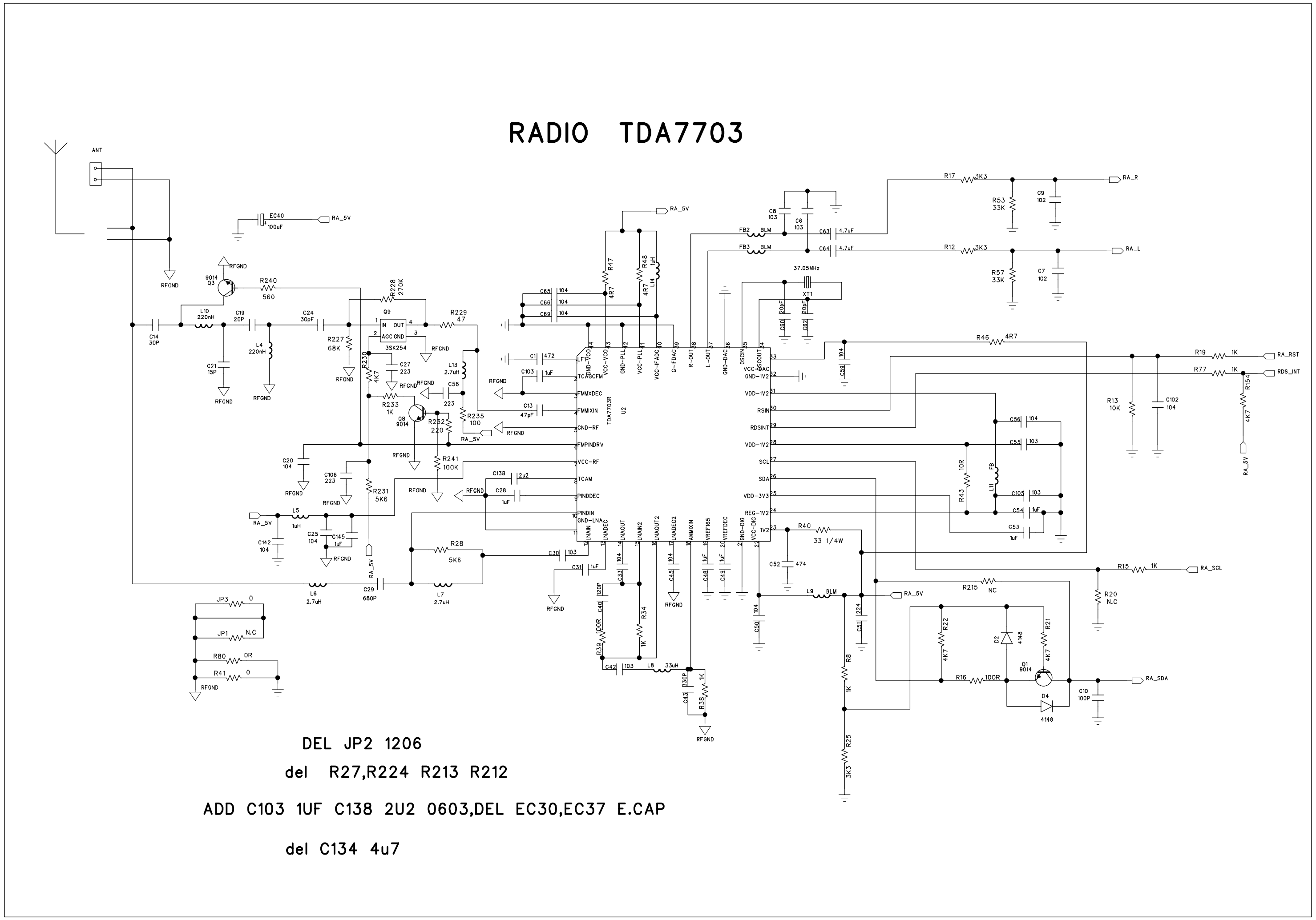
Memory Card
Support type of memory card: SD/SDHC

About Audio file
- USB or memory file system: FAT16, FAT32
- MP3/WMA bit rate: 32-320kbps and varible bit rate
- MP3 sampling frequencies: 8-48kHz
- WMA sampling frequencies: 32kHz, 44.1kHz, 48kHz
- ID3 tag v1.0 or later

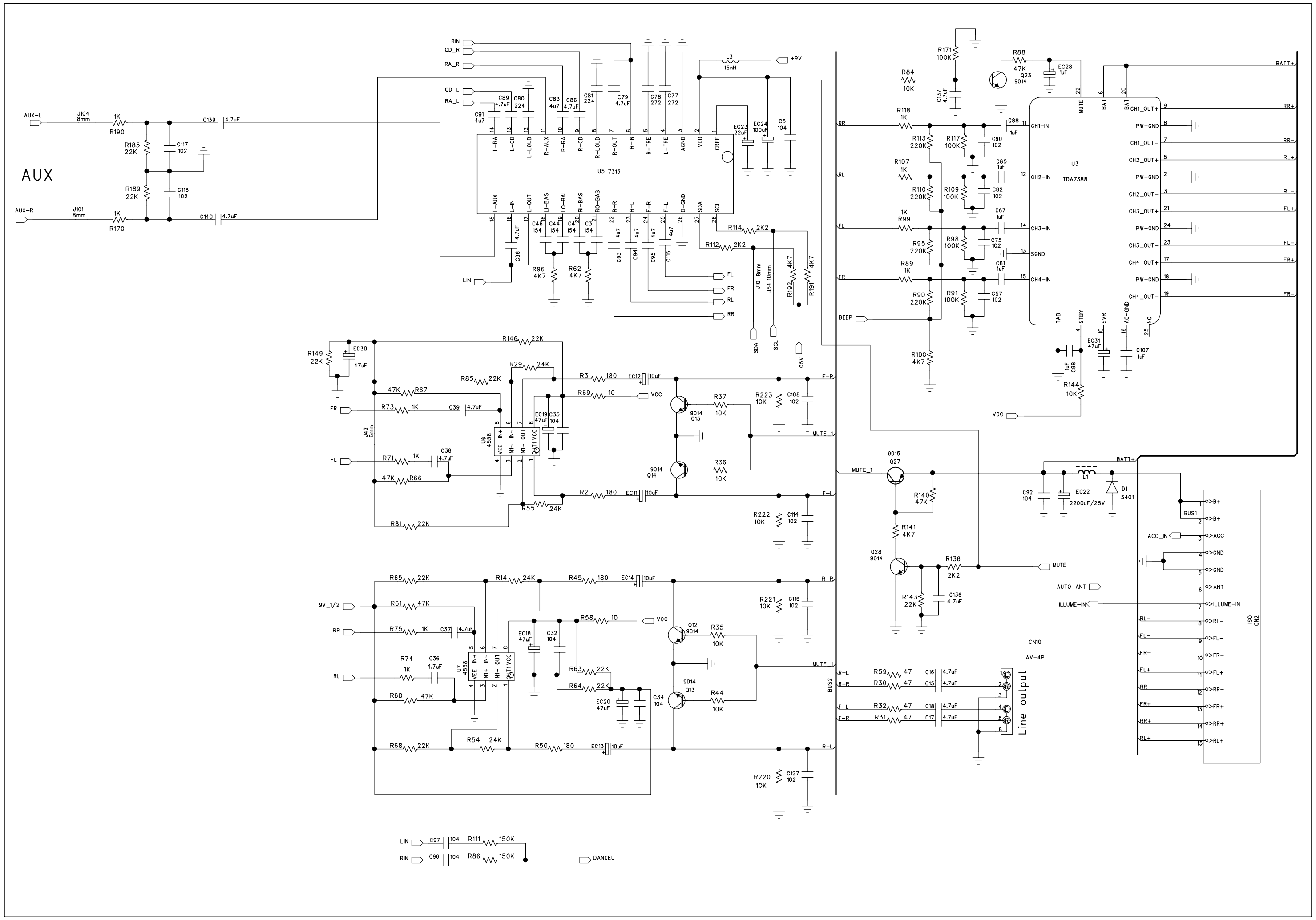
MAIN BOARD-CIRCUIT DIAGAM

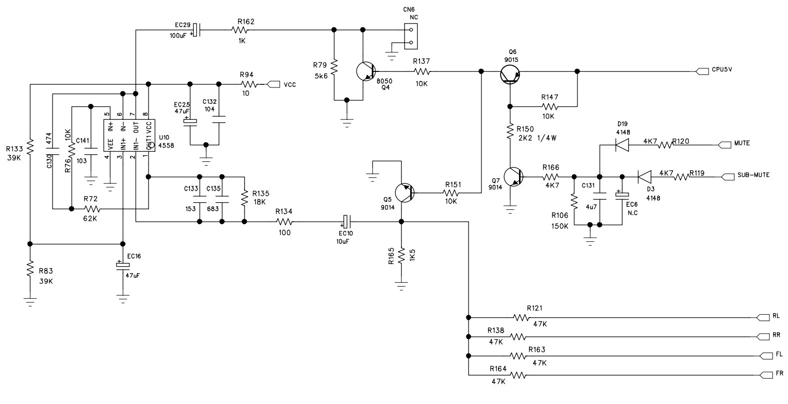



ACC
AUTO-ANT
DEL L12 1 1W,C143 103,EC5 47UF,
DEL EC21 220UF,L2 15UH,C2 104,R6 0,
DEL C74 104,C76 104,C144 332,U8 5502,
DIMMER
C22 FROM N.C TO 104
C47 FORM 474 TO 104


RADIO TDA7703
DEL JP2 1206
del R27,R224 R213 R212
ADD C103 1UF C138 2U2 0603,DEL EC30,EC37 E.CAP
del C134 4u7

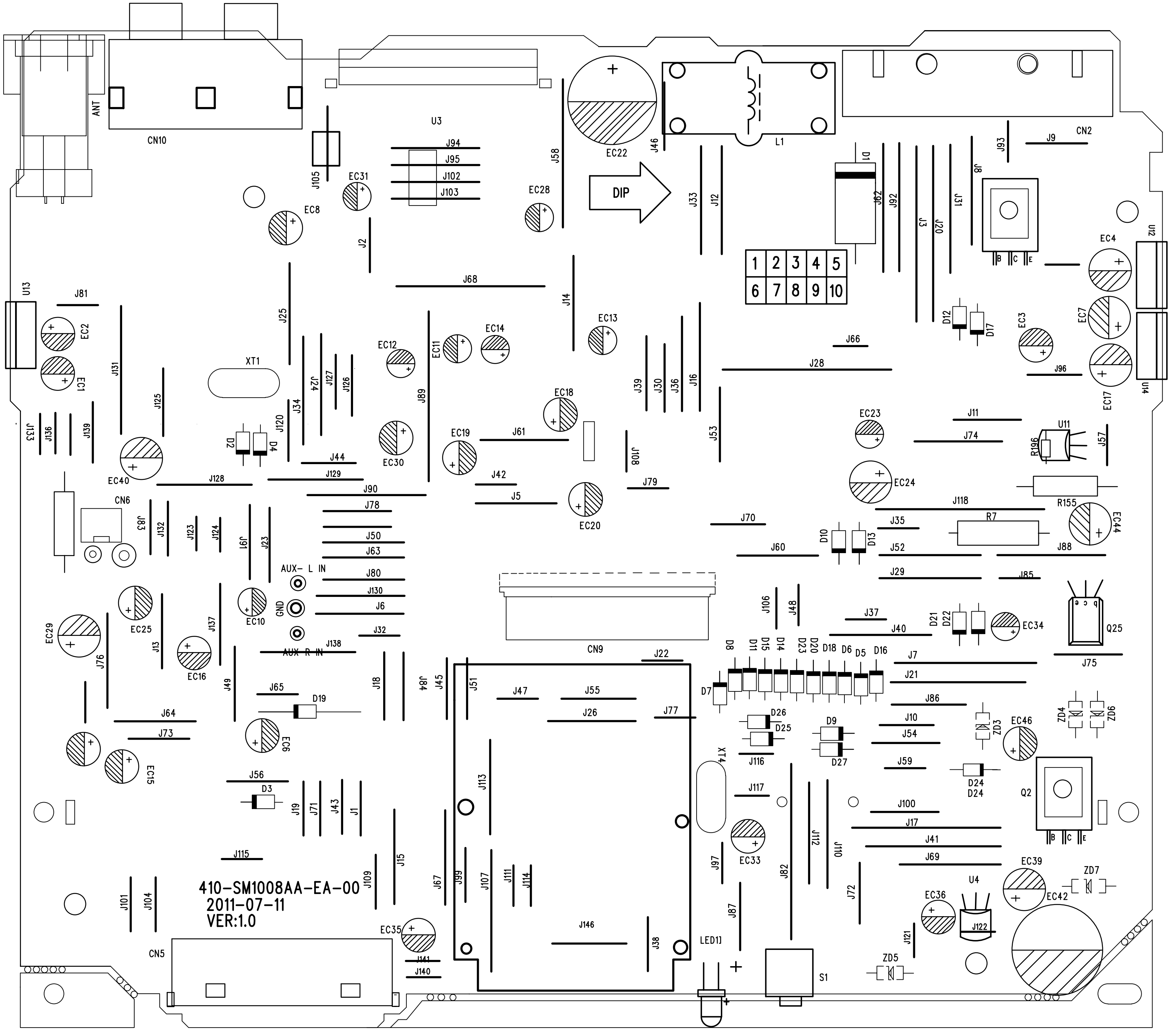
MAIN BOARD-CIRCUIT DIAGAM



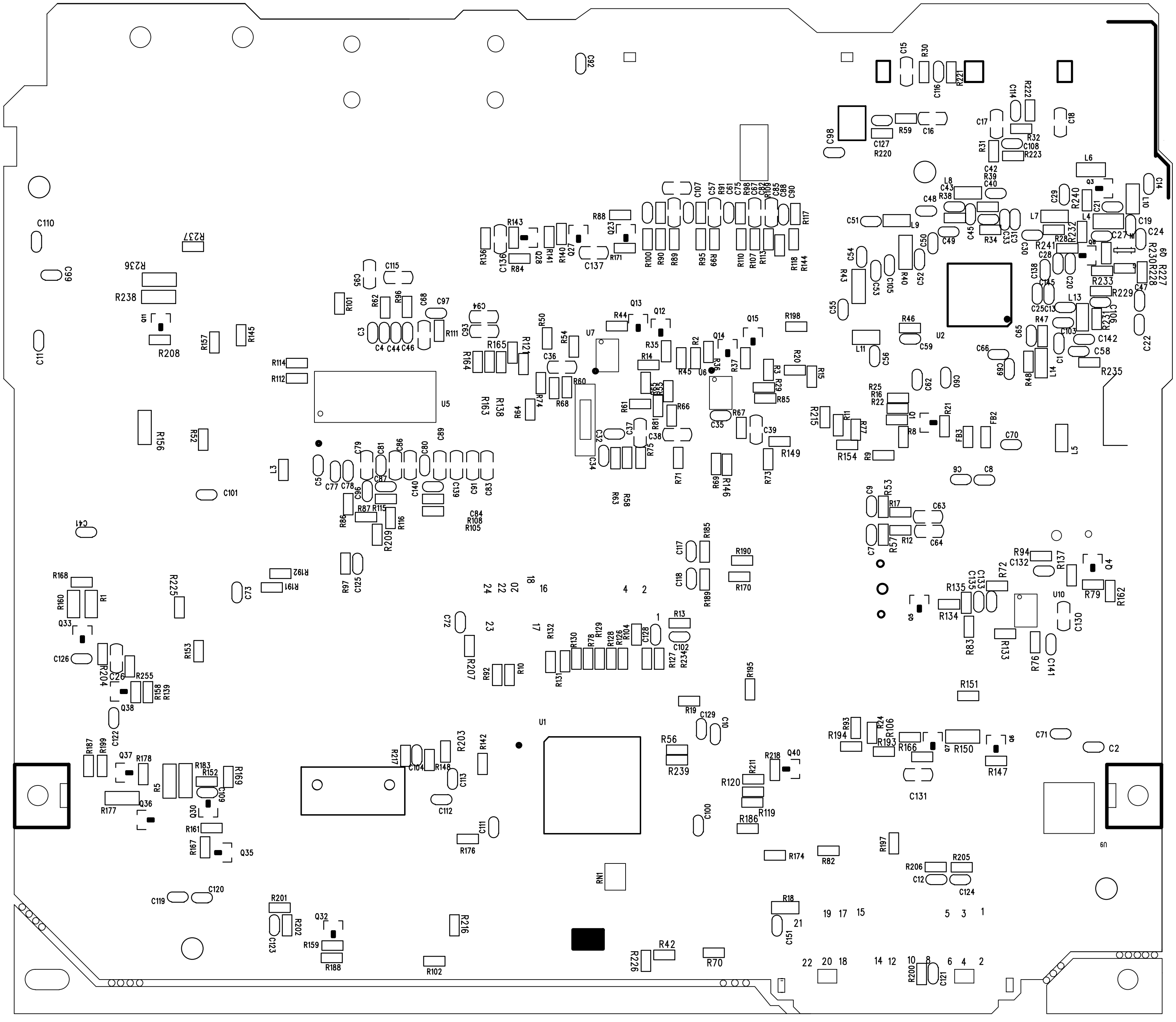


EC29
100uF
R162
1K
CN6
NC
R79
5k6
8050
Q4
R137
10K
Q6
9015
CPU5V
R94
10
VCC
EC25
47uF
C132
104
U10
4558
R133
39K
C141
103
R76
10K
474
R72
62K
R147
10K
R150
2K2 1/4W
D19
4148
4K7
R120
MUTE
4K7
R119
SUB-MUTE
D3
4148
C133
153
C135
683
R135
18K
Q5
9014
R151
10K
Q7
9014
R166
4K7
C131
4u7
EC6
N.C
R106
150K
R134
100
EC10
10uF
R165
1K5
R83
39K
EC16
47uF
R121
47K
RL
R138
47K
RR
R163
47K
FL
R164
47K
FR

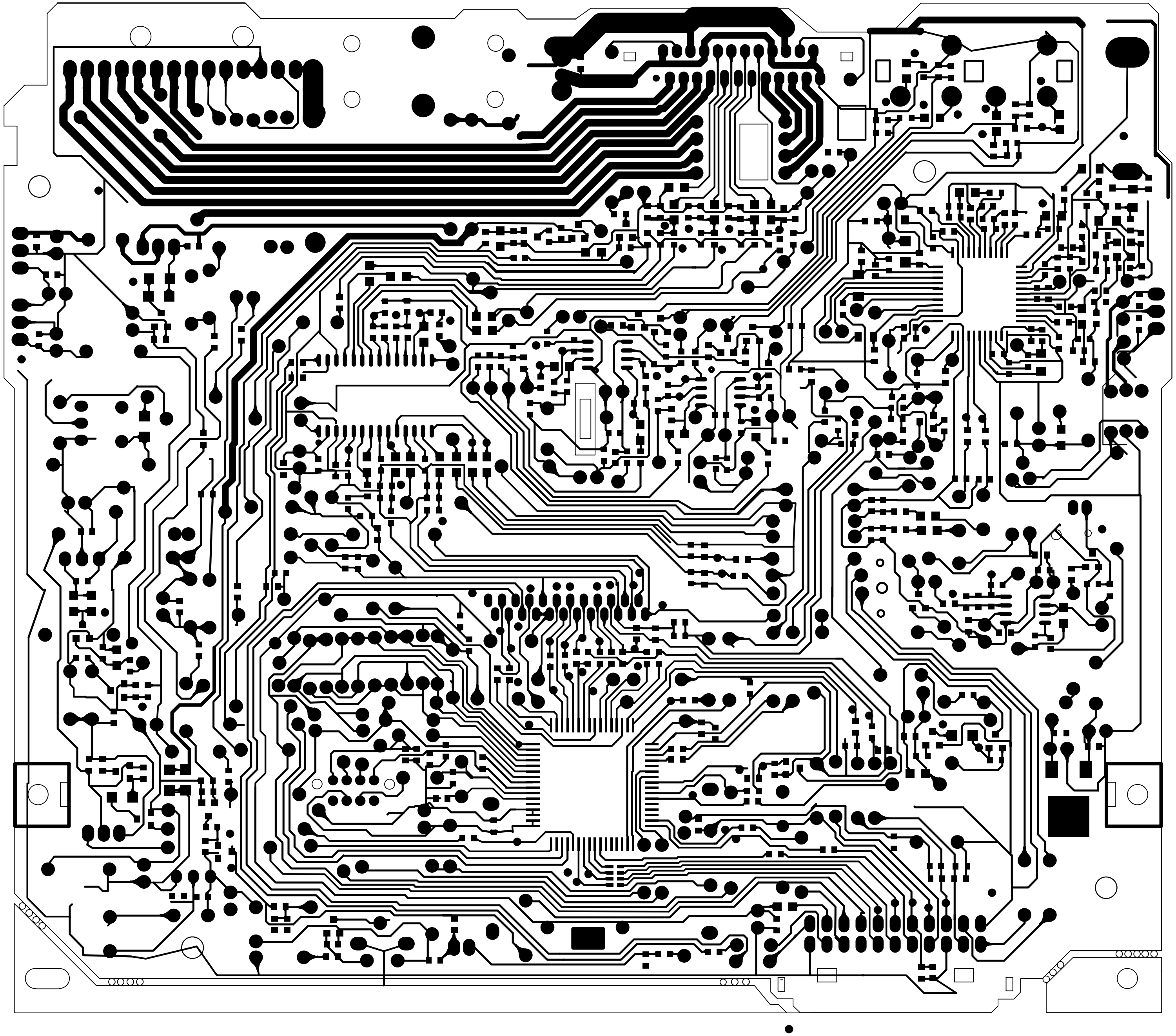
del C134 4u7


CN10
ANT
U3
J94
J95
J102
J103
EC22
L1
CN2
DIP
1 2 3 4 5
6 7 8 9 10
CN9
CN5
CN6
XT1
XT4
AUX- L IN
GND
AUX- R IN
S1
LED1
Q25
Q2
U4
U11
R155
R7
410-SM1008AA-EA-00
2011-07-11
VER:1.0

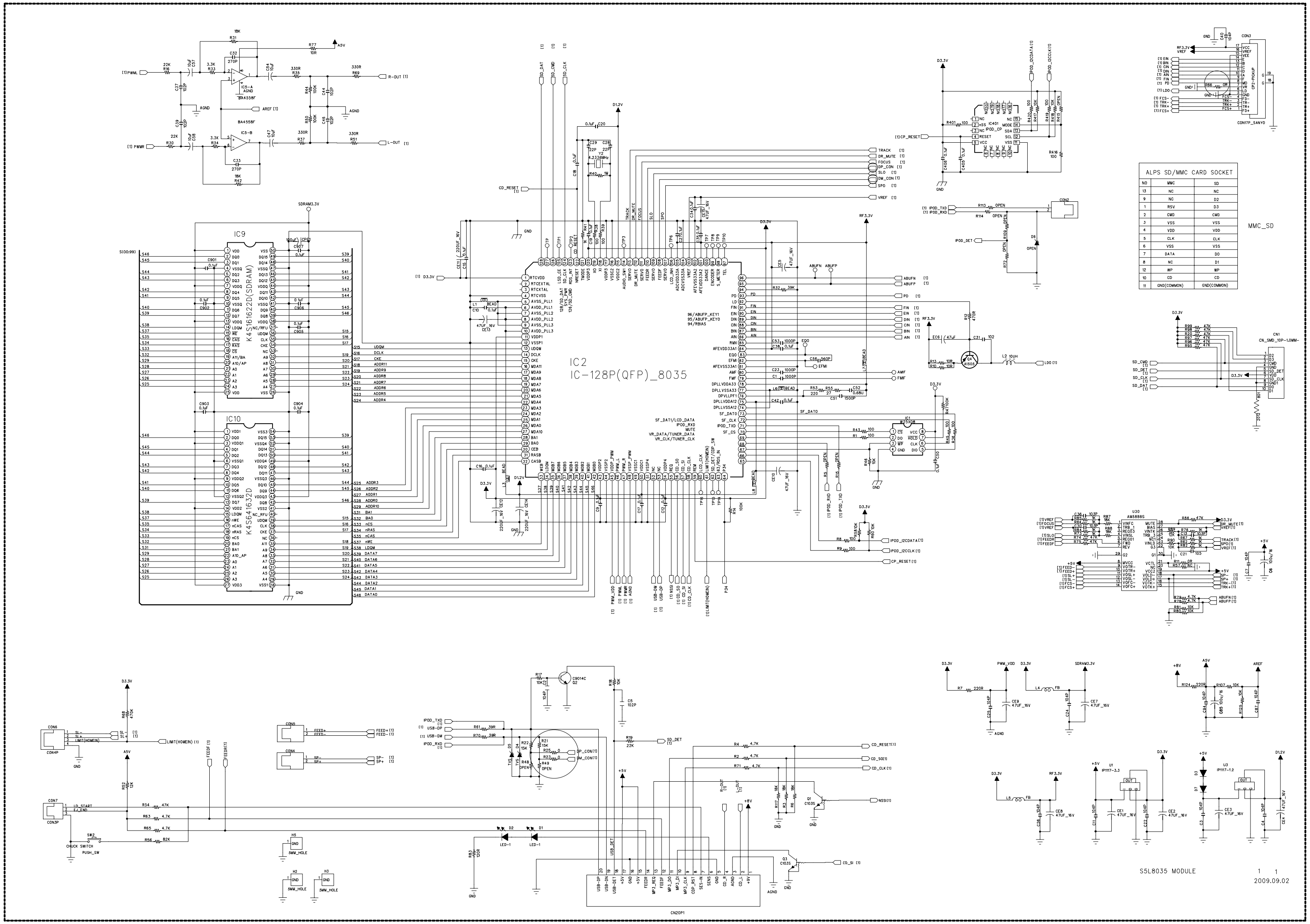
MAIN BOARD-LAYOUT DIAGAM

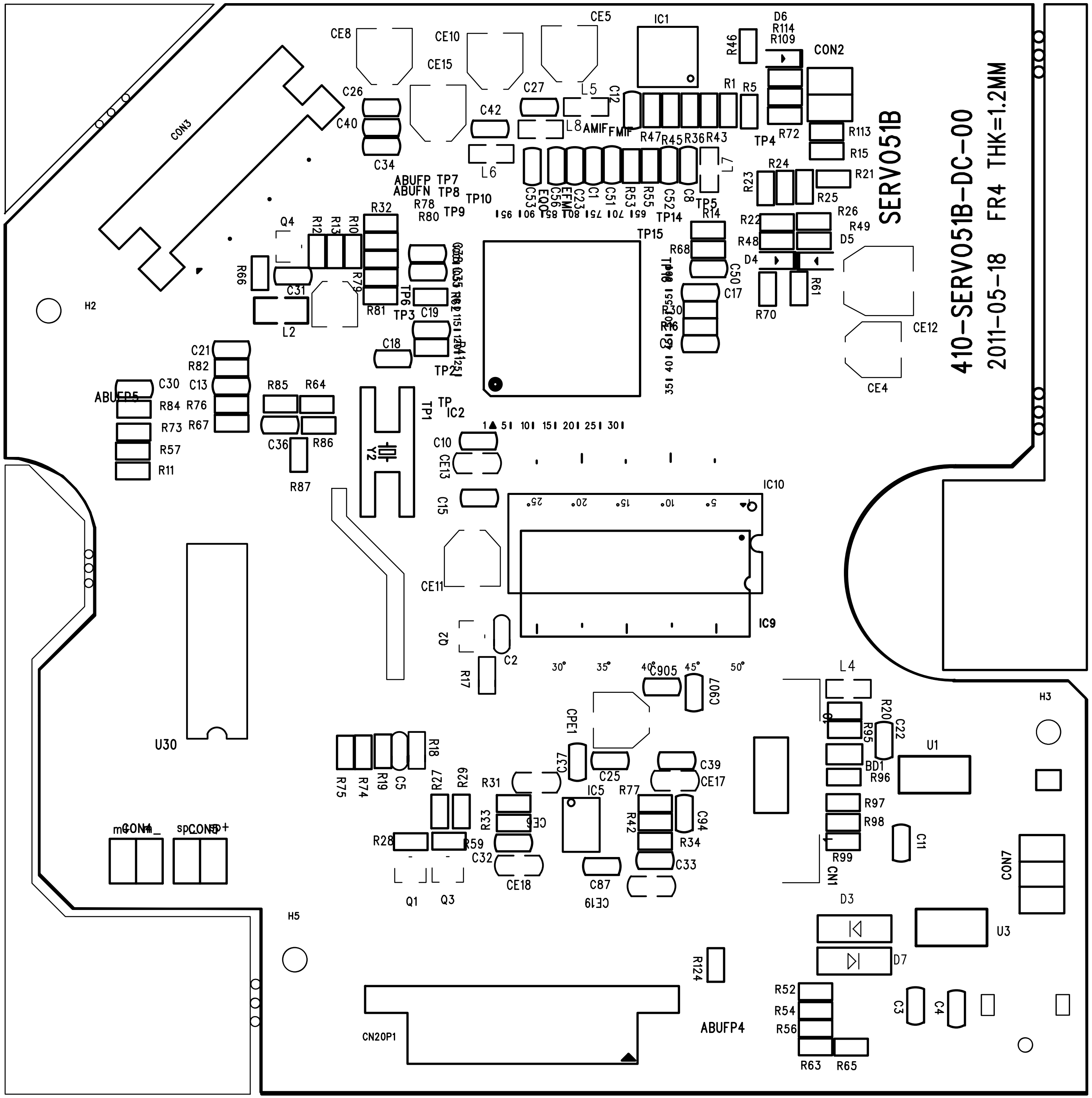


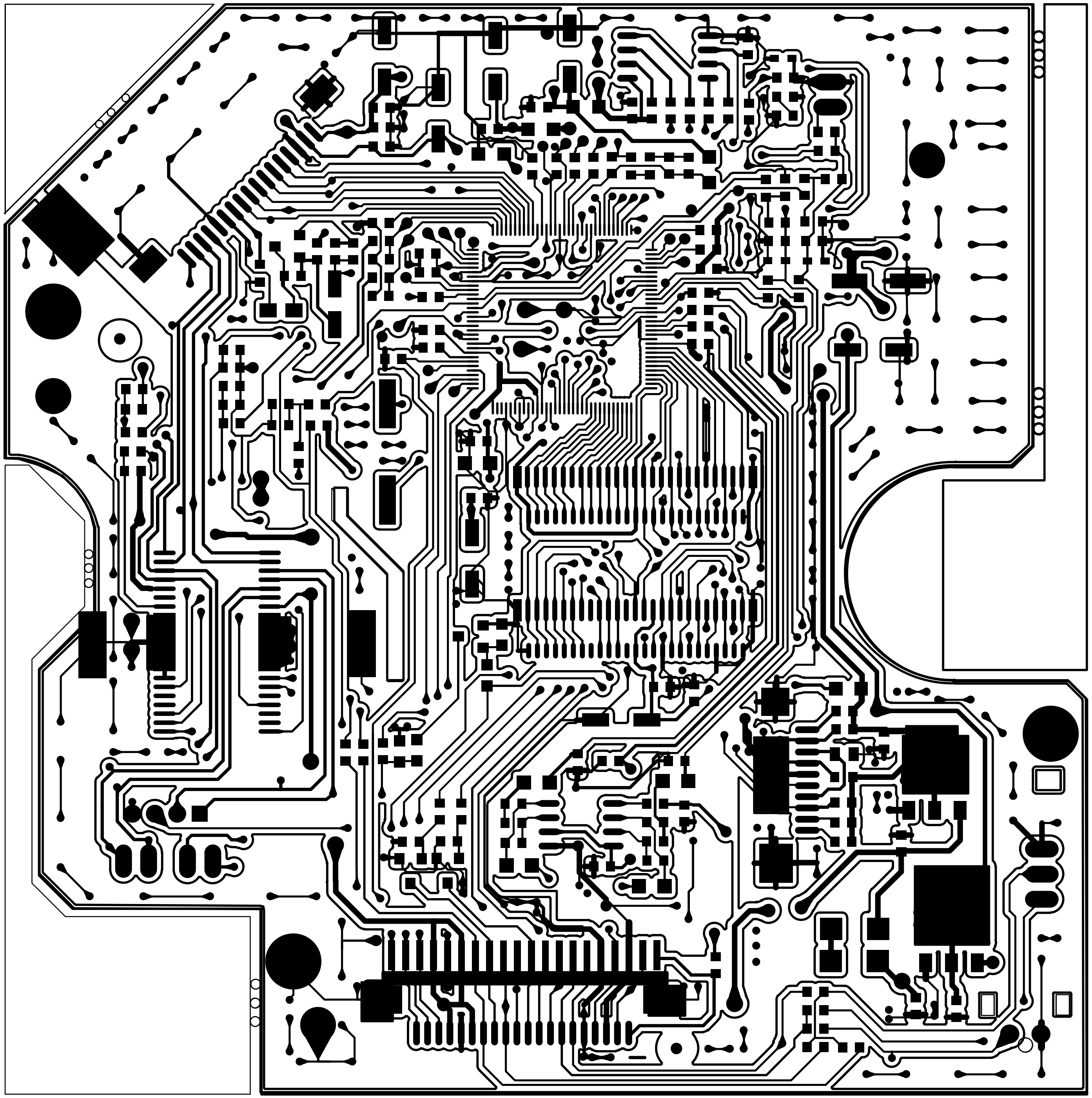
MAIN BOARD-LAYOUT DIAGAM

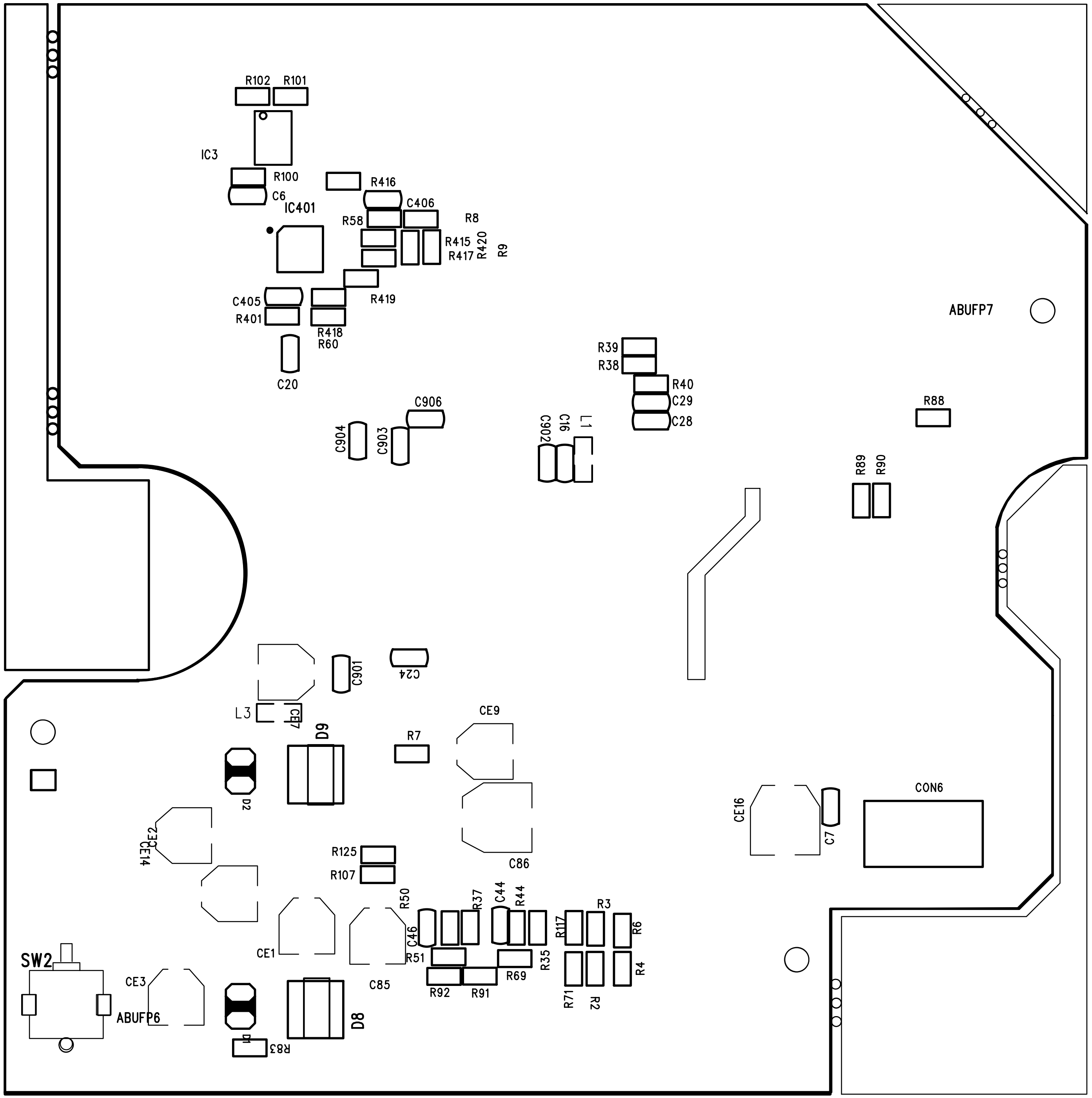


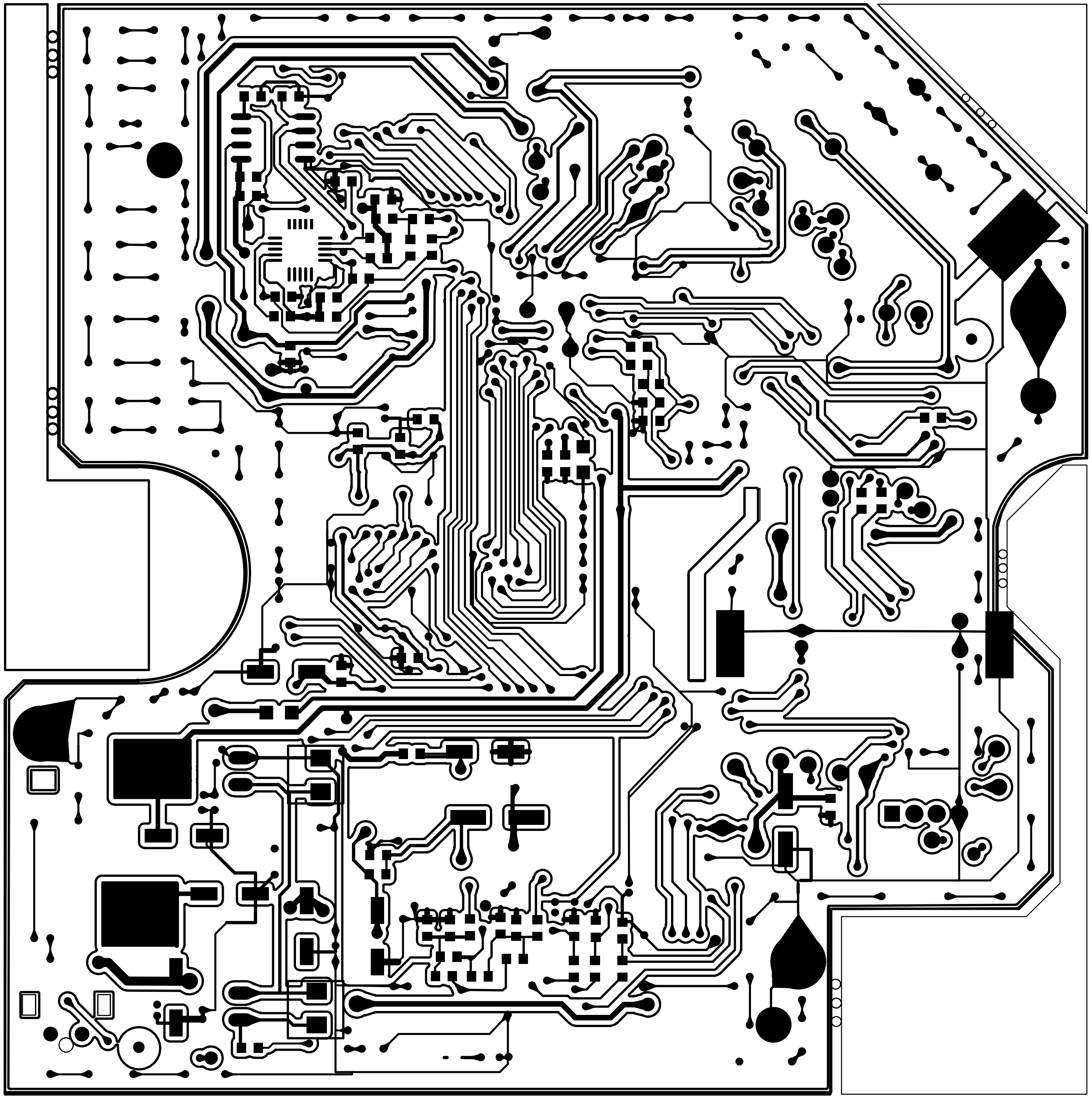
SERVO BOARD-CIRCUIT DIAGAM



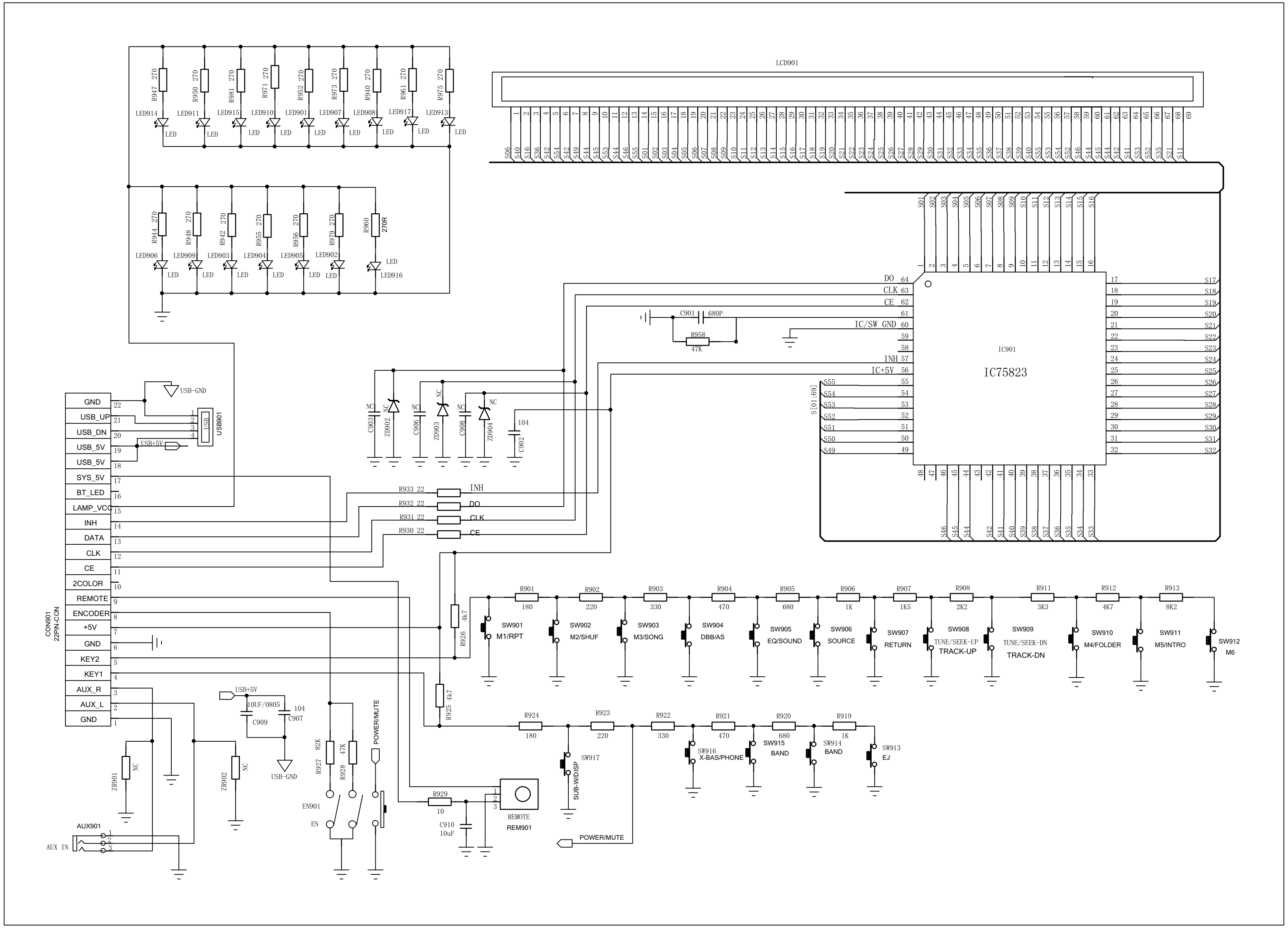

SERVO51B
410-SERVO51B-DC-00
2011-05-18 FR4 THK=1.2MM
CON3
CON2
CON7
CN20P1
U30
U1
U3
IC1
IC2
IC5
IC9
IC10
ABUFP4
ABUFP5
ABUFP TP7
ABUFN TP8
H2
H3
H5



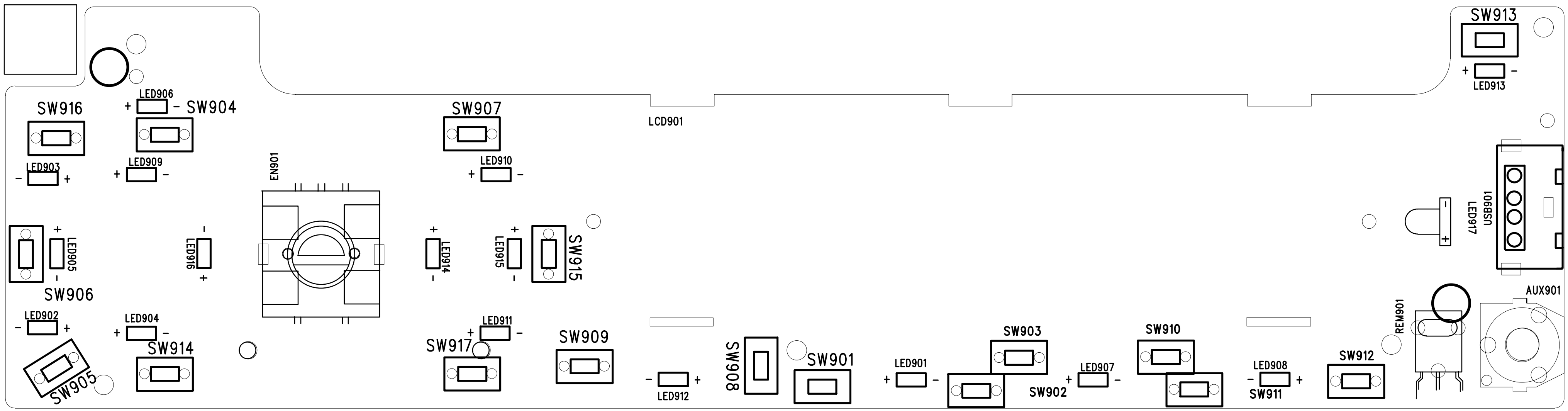

R102 R101
IC3
R100
C6
IC401
R416
C406
R58
R8
R415
R417
R420
R9
C405
R401
R419
R418
R60
C20
ABUFP7
R39
R38
R40
C29
C28
C906
C904
C903
C902
C16
L1
R88
R89
R90
C901
C24
L3
CE7
D9
R7
CE9
D2
CON6
CE16
C7
CE2
CE14
R125
R107
C86
R50
R37
C44
R44
R3
R117
R6
CE1
C46
R51
R35
R4
C85
R92
R91
R69
R71
R2
SW2
CE3
ABUFP6
D8
D1
R83



PANEL BOARD-CIRCUIT DIAGAM

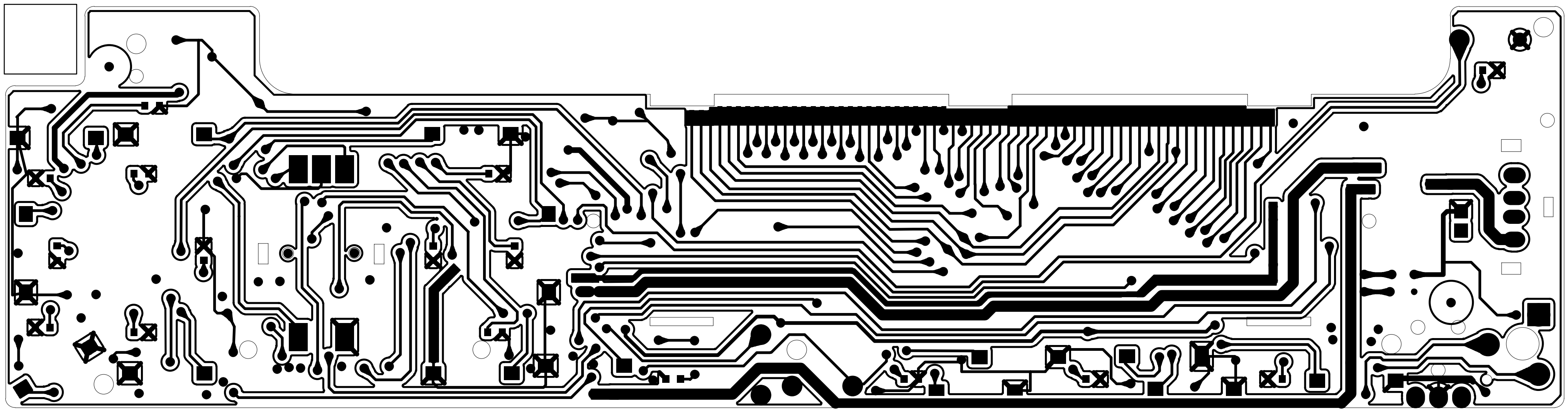


PANEL BOARD-LAYOUT DIAGAM

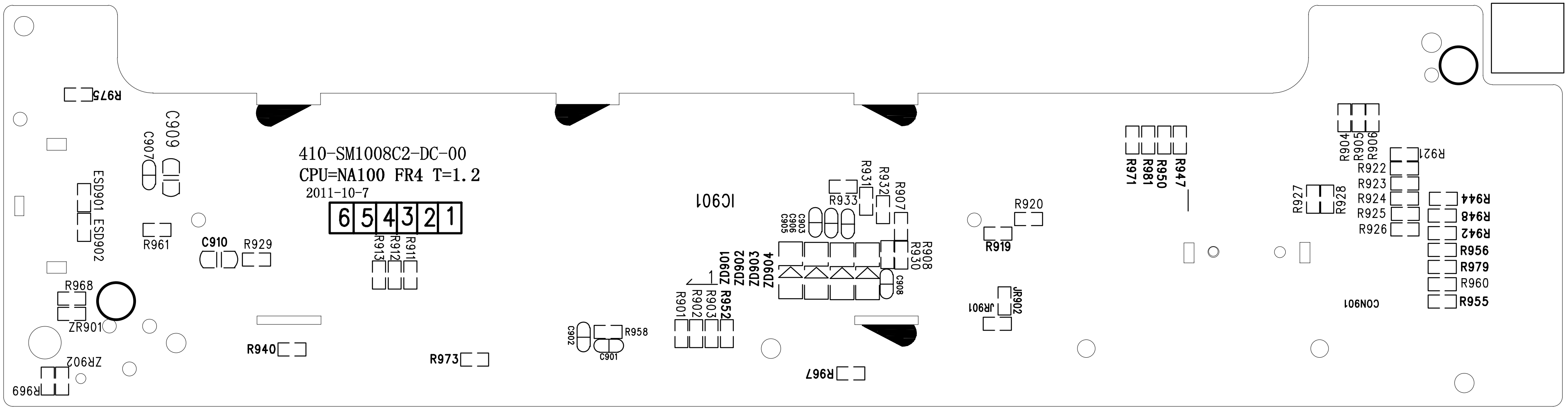


PANEL BOARD-LAYOUT DIAGAM

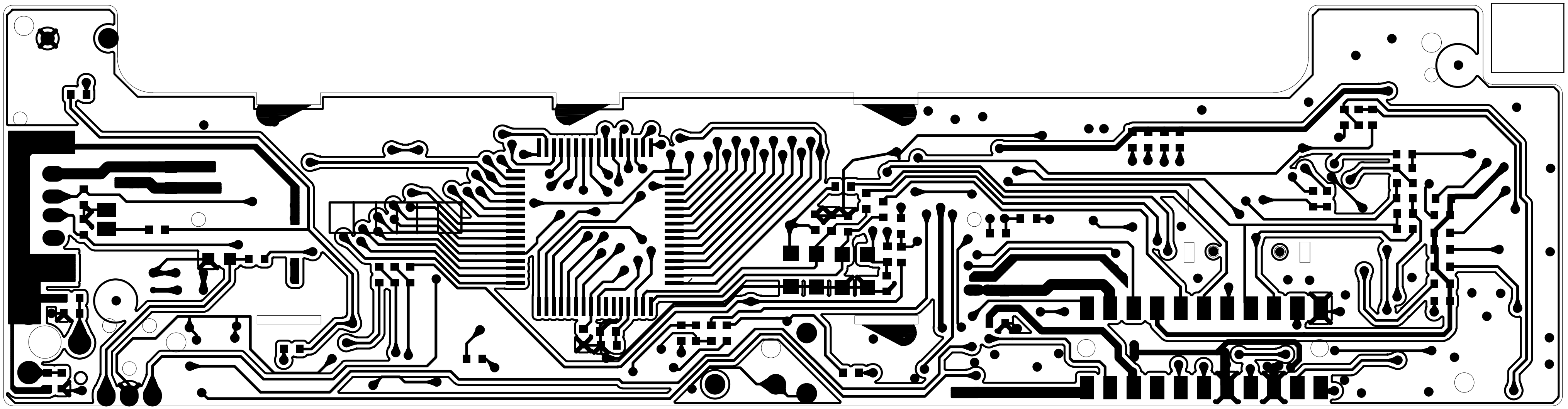
3-3

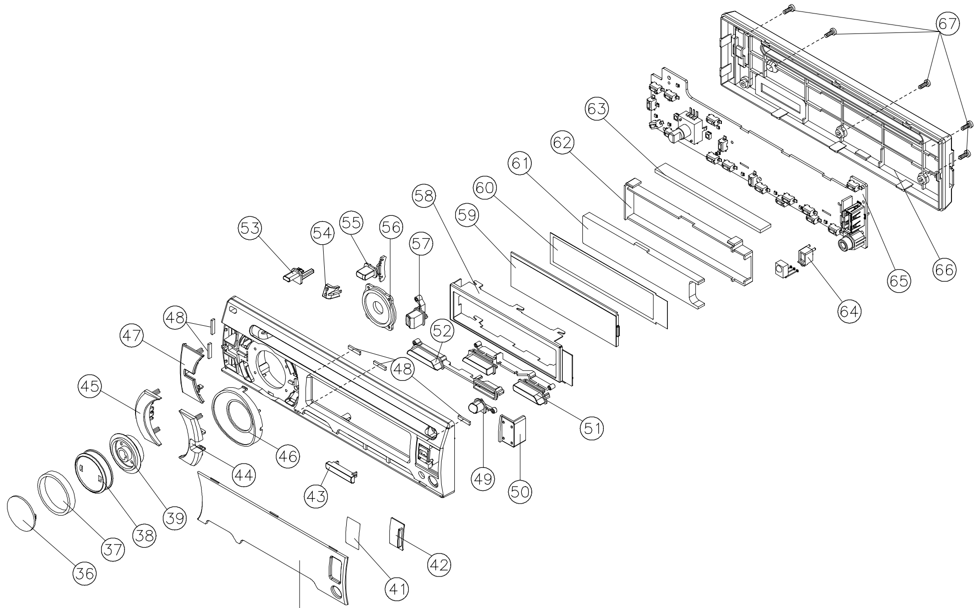


PANEL BOARD-LAYOUT DIAGAM

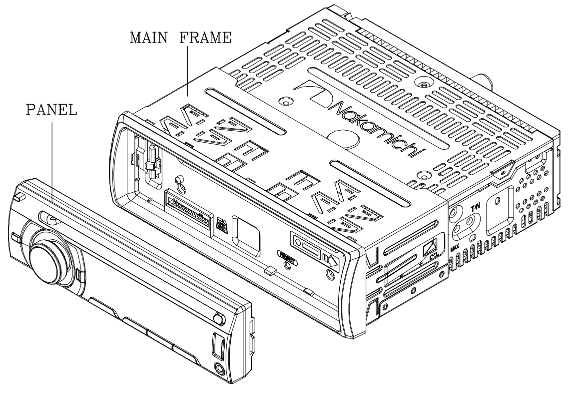


PANEL BOARD-LAYOUT DIAGAM

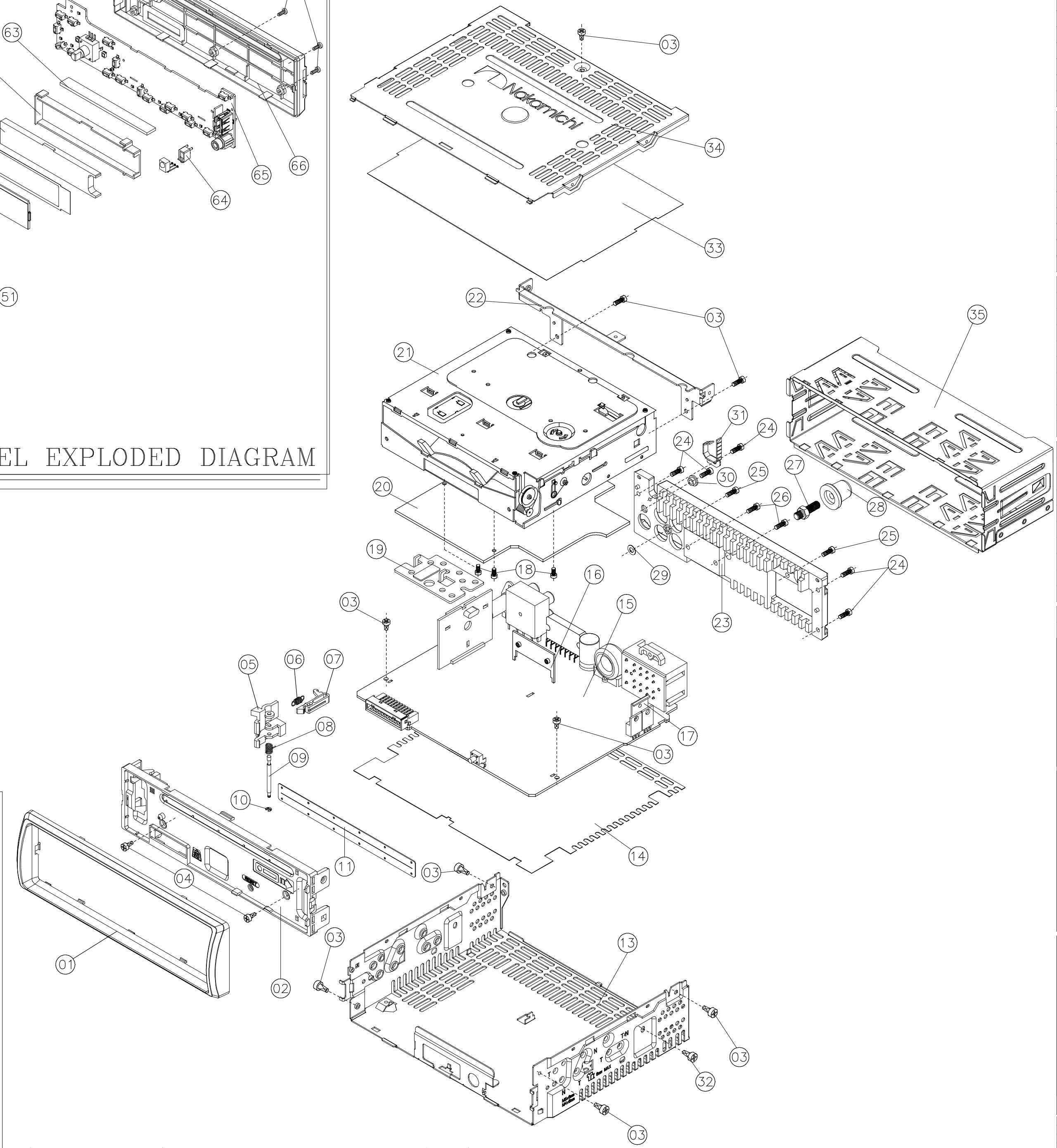




PANEL EXPLODED DIAGRAM



DETACHABLE PANEL



MAIN FRAME EXPLODED DIAGRAM

NO.	PART NUBER	DESCRIPTION	QTY
67	660-TBH20083-24-00	SCREW 2.0x8.0mm	5
66	600-SM100807-00-00	BACK PANEL	1
65	410-SM1008C2-DC-00	PANEL PCB	1
64	600-SM100826-00-00	ENSOR-BRACKET	1
63	443-82008220-00-00	RUBBER CONTACT	1
62	600-SM100829-00-00	LCD-HOLDER	1
61	600-SM100830-00-00	LCD-REFLECTOR	1
60	704-CEM200001-00-00	LCD DIFFUSION SHEET	1
59	440-0C352470-00-00	LCD	1
58	650-CEM200006-00-00	LCD BRACKET	1
57	600-SM100819-00-00	BUTTON "B"	1
56	600-SM100810-00-00	VOL-Illumination	1
55	600-SM100818-00-00	BUTTON "A"	1
54	600-SM100812-00-00	CD-Illumination	1
53	600-SM100822-00-00	BUTTON "RELEASE"	1
52	600-SM100816-00-00	SET BUTTON "D"	1
51	600-SM100817-00-00	SET BUTTON "E"	1
50	600-SM100824-00-00	USB Shade BRACKET	1
49	600-SM100820-00-00	BUTTON CD Eject	1
48	851-00852010-10-00	FOAM RUBBER 8.5x2.0,T=1.0mm	5
47	600-SM100813-00-00	SET BUTTON "A"	1
46	600-SM100828-00-00	VOL Adorn Ring	1
45	600-SM100814-00-00	SET BUTTON "B"	1
44	600-SM100815-00-00	SET BUTTON "C"	1
43	600-SM100821-00-00	BUTTON Cover	1
42	600-SM100825-00-00	USB COVER	1
41	705-SM100801-00-00	PET-SHEET	1
40	600-SM100808-00-00	LENS (USB)	1
39	600-SM100811-00-00	VOL-KNOB "B"	1
38	600-SM100827-00-00	VOL-KNOB "A"	1
37	444-HD105001-00-10	Rubber Ring	1
36	600-SM100823-00-00	TOP VOL Cover	1
35	650-CEM200005-00-00	HALF-SLEEVE	1
34	650-CEM200002-00-00	TOP COVER	1
33	703-CEM200001-00-00	FELT	1
32	660-MPH30060-21-00	SCREW 3.0x6.0mm	1
31	650-CEM200007-00-00	WIRE-CLAMP	1
30	600-FIX10031-00-00	Patch Plastic-PA-66	1
29	701-CEM200002-00-00	FIBRE SHEET 7.0*3.5*0.4mm	1
28	444-RUBEND01-00-00	RUBBER COVER	1
27	660-MHD50120-01-01	SCREW M5x12+M5x5 Hexagonal Head	1
26	660-MPH30160-21-00	SCREW 3.0x16mm	2
25	660-TPH30101-21-00	SCREW 3.0x10mm	2
24	660-EBH2608B-21-00	SCREW 2.6x8mm	5
23	650-SM100803-20-00	HEAT SINK	1
22	650-CEM200003-00-00	CD MECHANISM BRACKET	1
21	432-0CR01AAB-01-00	CD MECHANISM	1
20	410-SERV051B-DC-00	SERVO PCB	1
19	650-CEM20015-00-00	DRIVER IC HEAT SINK	1
18	660-EPH2005B-27-00	SCREW 2.0x5mm	3
17	650-000SL835-00-00	7808 IC BRACKET	1
16	650-SM885A07-00-00	IC BRACKET	1
15	410-SM1008AA-EA-00	MAIN PCB	1
14	704-SM100802-00-00	PC SHEET	1
13	650-SM100801-00-00	MAIN BRACKET	1
12			1
11	703-CEM200002-00-00	CD DUSTPROOF FELT	1
10	661-ERM01500-04-00	"E" RING	1
09	650-CEM200011-00-00	PIN	1
08	650-CEM200009-00-00	SPRING "A"	1
07	600-SM100803-00-00	PANEL LOCKER "B"	1
06	650-CEM200010-00-00	SPRING "B"	1
05	600-SM100802-00-00	PANEL LOCKER "A"	1
04	660-EBH2606B-24-00	SCREW 2.6x6	2
03	660-EBH2605B-21-00	SCREW 2.6x5	9
02	600-SM100801-10-00	BASE(NO SD)	1
01	600-SM100805-00-00	TRIM PLATE	1

NO.	DESCRIPTION		MATERIAL			FINISH (COLOR)	Q'TY	REMARK
DESIGN	CHECK	APPROVAL		G.TOL ±0.1	NAME	EXPLODED DIAGRAM		
DENG			SCALE 1:1	UNIT mm	MODEL NO.	NA100 SM1008	FILE	SIZE A0
2010-12-09					PART NO.			

Nakamichi®

NA200R

Car Audio System Player

INSTRUCTION MANUAL

CD MP3 WMA USB

SD AUX-IN

Safety

WARNING

Stop the car before operating the unit.

Important to know...

★ To prevent a short circuit, never put or leave any metallic objects (such as coins or metal tools) inside the unit.

★ **Caution**: Adjust the volume so that you can hear sounds outside the car. Driving with the volume too high may cause an accident.

★ **Condensation:** When the car is air-conditioned, moisture may collect on the laser lens. This may cause disc read errors. In this case, remove the disc and wait for the moisture to evaporate.

★ The illustrations in this manual are examples used to explain more clearly how the controls are used. Therefore, what appears on the illustrations may differ from what appears on the actual equipment.

★ If you experience problems during installation, consult your Nakamichi dealer.

★ When you purchase external components, check with your Nakamichi dealer to make sure that they work with your model and in your area.

Maintenance

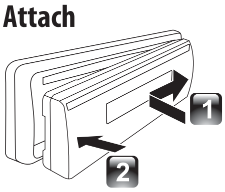
Cleaning the unit: Wipe off the dirt on the panel with a dry silicon or soft cloth. Failure to observe this precaution may result in damage to the monitor or unit.

Cleaning the connector: Wipe off dirt on the connector of the unit and faceplate. Use a cotton swab or cloth.

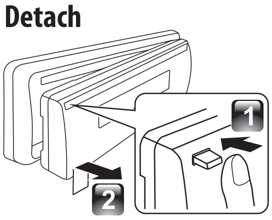
Preparation

How to attach/detach the faceplate

Attach



Detach



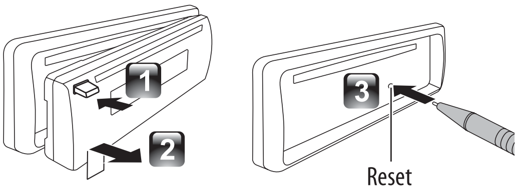
★ Do not expose the faceplate to direct sunlight, excessive heat, or humidity. Also avoid places with too much dust or the possibility of water splashing.

★ Keep the faceplate in its casing while detached.

★ The faceplate is a precision piece of equipment and can be damaged by shocks or jolts.

★ To prevent deterioration, do not touch the terminals of the unit and faceplate with your fingers.

How to reset your unit

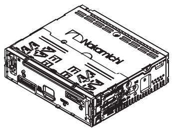


★ If this unit fails to operate properly, press the reset button.

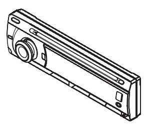
★ The unit return to factory setting when the reset button is pressed.

What's in the box

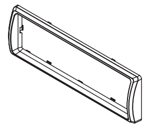
Check and identify the contents of your package:



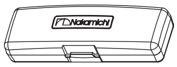
Main unit (with sleeve)



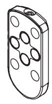
Front panel



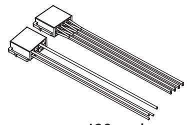
Trim plate



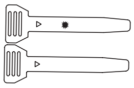
Carrying case (for front panel)



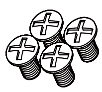
Remote control



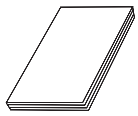
ISO male connector



Disassembly tool (2pcs)



Screw x 4pcs



User manual

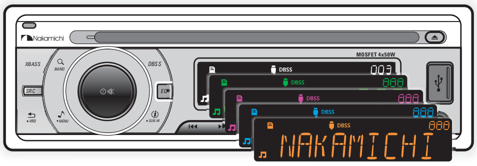
Highlight Features

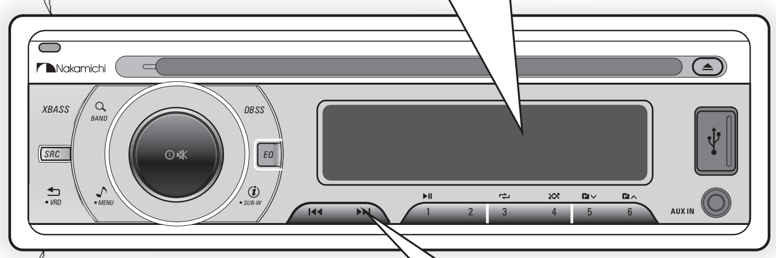
This unit is allowed to connect the 5V preout for Subwoofer.



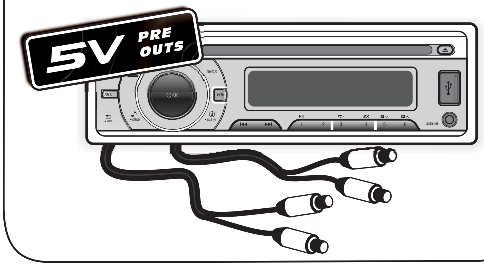
Variable Color illumination

This unit is equipped with varable color display/illumination.





This unit is allowed to connect the 5V preout for Rear and Front RCA Line Out.



QUICK MUSIC FILE ACCESS

Under Disc/USB/SD/iPod/iPhone playback mode, press ⏮/⏭ buttons first, and then press and hold ⏮/⏭ buttons within one second, it is can be access into quick music file access track or file up/down browse feature.

Installation / Connection

Basic Procedure

1 Remove the key from the ignition switch, then disconnect the ⊖ terminal of the car battery.
2 Make proper input and output wire connections.
3 Install the unit to your car.
4 Reconnect the ⊖ terminal of the car battery.
5 Reset the unit.

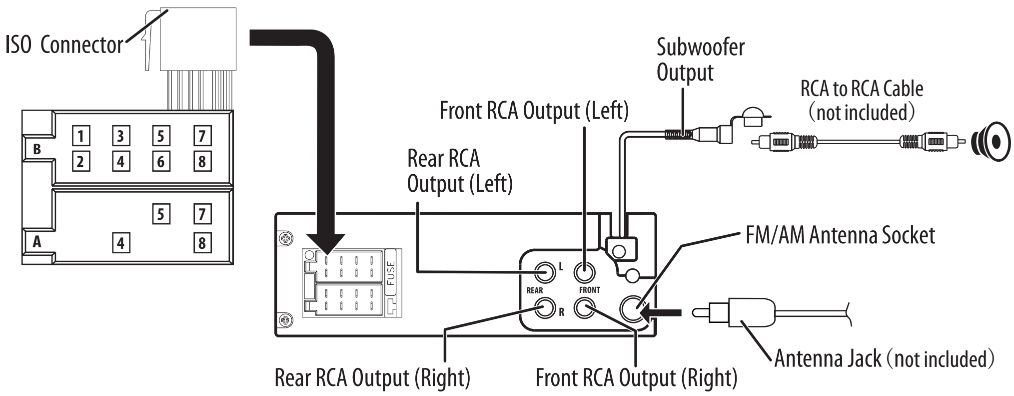
Warning

★ The unit can only be installed in a car with a 12 V DC power supply, negative ground.
★ If you connect the ignition wire (red) and the battery wire (yellow) to the car chassis (ground), you may cause a short circuit, that in turn may start a fire. Always connect those wires to the power source running through the fuse box.
★ Disconnect the battery's negative terminal and make all electrical connections before installing the unit.
★ Insulate unconnected wires with vinyl tape or other similar material. To prevent a short circuit, do not remove the caps on the ends of the unconnected wires or the terminals.
★ Be sure to ground this unit to the car's chassis again after installation.
★ If the power is not turned ON, the speaker wire may have a short-circuit or touched the chassis of the vehicle and the protection function may have been activated. Therefore, the speaker wire should be checked.

Caution

★ If your car's ignition does not have an ACC position, connect the ignition wires to a power source that can be turned on and off with the ignition key. If you connect the ignition wire to a power source with a constant voltage supply, as with battery wires, the battery may die.
★ Install this unit in the console of your vehicle. Make sure the faceplate will not hit the lid of the console (if any) when closing and opening.
★ After the unit is installed, check whether the brake lamps, blinkers, wipers, etc. on the car are working properly.
★ Mount the unit so that the mounting angle is 30° or less.
★ If the fuse blows, first make sure the wires are not touching to cause a short circuit, then replace the old fuse with one that has the same rating.
★ Connect the speaker wires correctly to the terminals to which they correspond. The unit may be damaged or fail to work if you share the ⊖ wires or ground them to any metal part in the car.
★ When only two speakers are being connected to the system, connect the connectors either to both the front output terminals or to both the rear output terminals (do not mix front and rear).
★ Mounting and wiring this product requires skills and experience. For safety's sake, leave this work to professionals.
If you experience problems during installation, consult your Nakamichi dealer.

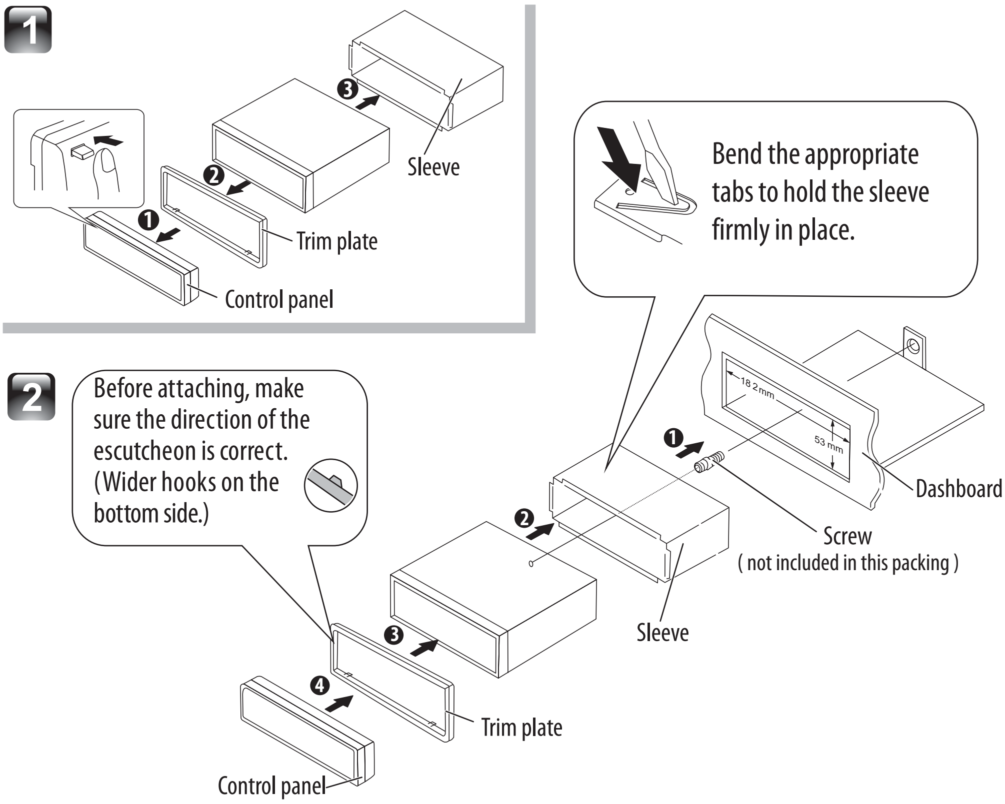
Wiring Connection



ISO Connector Wiring Chart

Pin	Color and function		Pin	Color and function	
A4	Yellow	Battery(+)	B1/B2	Violet ⊕ / Violet/Black ⊖	Right rear speaker
A5	Blue	Connect to system control terminal of the power AMP or auto antenna relaycontrol terminal(Max 150MA 12VDC)	B3/B4	Grey ⊕ / Grey/Black ⊖	Right front speaker
A7	Red	Ignition(ACC)	B5/B6	White ⊕ / White/Black ⊖	Left front speaker
A8	Black	Ground	B7/B8	Green ⊕ / Green/Black ⊖	Left rear speaker

Installing the unit

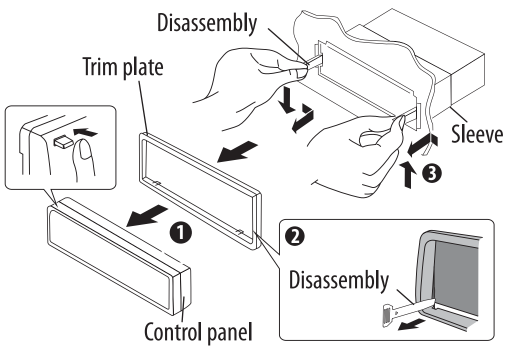


Removing the unit

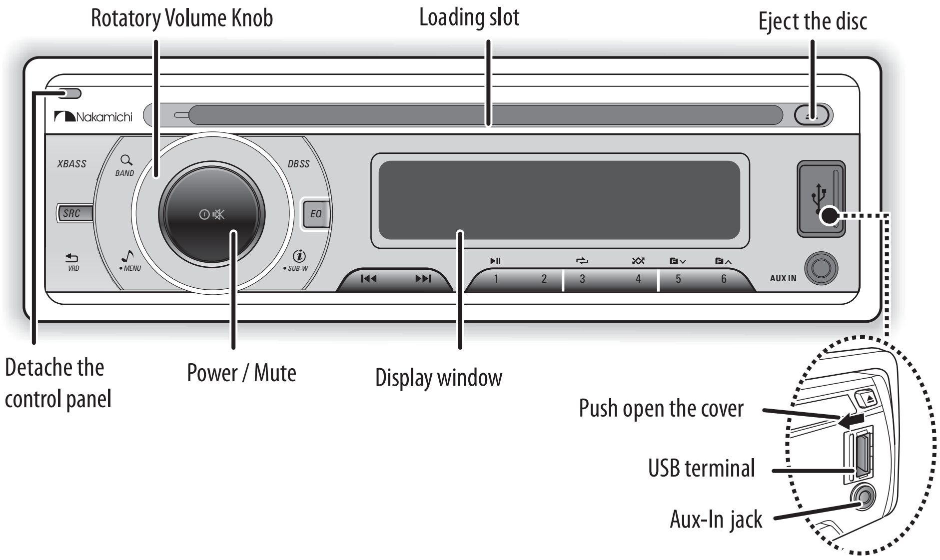
1 Detach the control panel.

2 Engage the catch pin on the removal tools into the holes on both sides of the escutcheon, then pull it out.

3 Insert the disassembly tools deeply into the slots on each side, then follow the arrows instructions as shown on the right.



Basic Operation



When you press or hold the following button(s)...

Main unit	General operation
SRC	Select the available sources (Radio, Disc, USB , SD or Aux-In), if the power is turned on.
Rotatory Volume knob	Rotate it to increase or decrease the volume.
	Select items.
⏻ 🔇 Power / Mute	■ Turn mute or restore volume. ■ Turn the unit on. Press and hold again to turn the unit off. ■ Confirms selection.
🔍 ***BAND***	■ Select the FM bands (FM1/ FM2/ FM3) or AM1 (MW1) / AM2 (Mw2). ■ Under media playback to access into search mode.
1 ▶II	Pause/resumes playback of a Disc, USB / SD device.
I◀◀/▶▶I	■ Under Radio mode to enter into the Auto Seek mode, press and hold to enter into the Manual Seek mode. ■ Under Media playback mode to skip track / file, press and hold to fast forward / backward.
♪ ***MENU***	To access into the Audio Menu mode, press and hold to enter into the System Menu mode.
DBSS	Press and hold to turn On or Off dynamic bass boost sound.
ⓘ ***SUB-W***	■ To view the Clock, press and hold turn On or Off the subwoofer function. ■ Under RDS mode to view RDS received information. ■ Under Media playback mode to view play informations.
XBASS	Turn On or Off the Xbass bosster function.
EQ	To adjust the EQ (Preset Equalizer) setting.
⮌ ***VRD***	■ Returns to the previous item. ■ Press and hold access into the VRD display color setting mode.

Function Setting

1 Press ♪MENU to access into the **[AUDIO MENU]** mode, press and hold to enter into the **[MENU]** mode.

2 Press ⏮/⏭ repeatedly to select the item to be adjusted.

3 Turn the encoder volume knob to select a value / option.

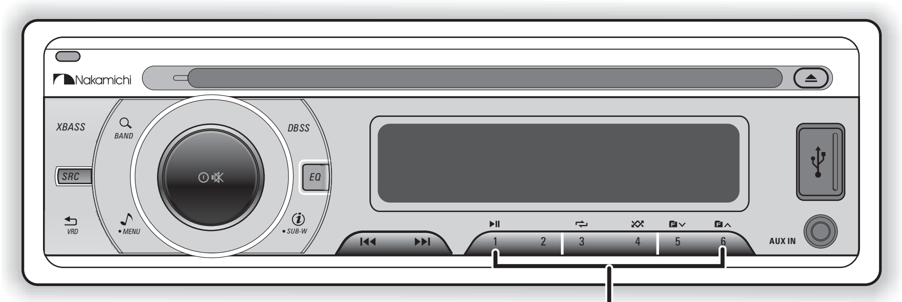
[AUDIO MENU] ...

Item	Selectable Setting
BASS ADJUST	
BASS LEVEL	Adjust the level -7 to +7.
BASS CFQ	Select the center frequency: 60 / 80 / 100 / 200
MIDDLE ADJUST	
MIDDLE LEVEL	Adjust the level -7 to +7.
MIDDLE CFQ	Select the center frequency: 0.5K / 1.0K / 1.5K / 2.5K
TREBLE ADJUST	
TREBLE LEVEL	Adjust the level -7 to +7.
TREBLE CFQ	Select the center frequency: 10.0K / 12.5K / 15.0K / 17.5K
BALANCE	Adjust the balance between the right and left speakers from 12R (full right) to 12L (full left).
FADER	Adjust the fader between the front and rear speakers from 12R (full rear) to 12L (full front).
SUBWOOFER ADJUST	
SUBWOOFER	Adjust the level 0 to 12.
SUBWOOFER LPF	Subwoofer low pass filter range: 80 / 120 / 160
RESUME	Resume the preset EQ value to factory default value.

[MENU] ...

Item	Selectable Setting
CLOCK	
CLOCK SET	Adjust the Hours and Minutes
CLOCK FORMAT	Select the time format 12H or 24H
BEEP TONE	Turn On or Off this beep sound
DIMMER	Adjust the LCD display backlight level between Hight or Low
VRD DISPLAY COLOR	This unit is equipped with variable color display. Once into the DISPLAY COLOR mode, rotating encoder volume knob to selected the LCD color. ■ COLOR SCAN (default setting); WHITE; GREEN 1; GREEN 2; GREEN 3; AMBER; PINK 1; PINK 2; PURPLE 1; PURPLE 2; BLUE 1; BLUE 2; USER COLOR; ORANGE
DEMO	To automatically demo this unit's major features cyclic on LCD display.

Listening to the Radio



■ Hold for about 2 seconds to memorize the current station .
■ Press briefly to recall memorized station.

1 Press 🔍 ***BAND*** repeatedly to a band (FM1, FM2, FM3, AM1(MW1) or AM2 (MW2) .

2 Press ⏮/⏭ to search for a station.

3 Press ⓘ ***SUB-W*** repeatedly to view RDS received information.

Adjust [MENU] mode setting

While listening to the radio...

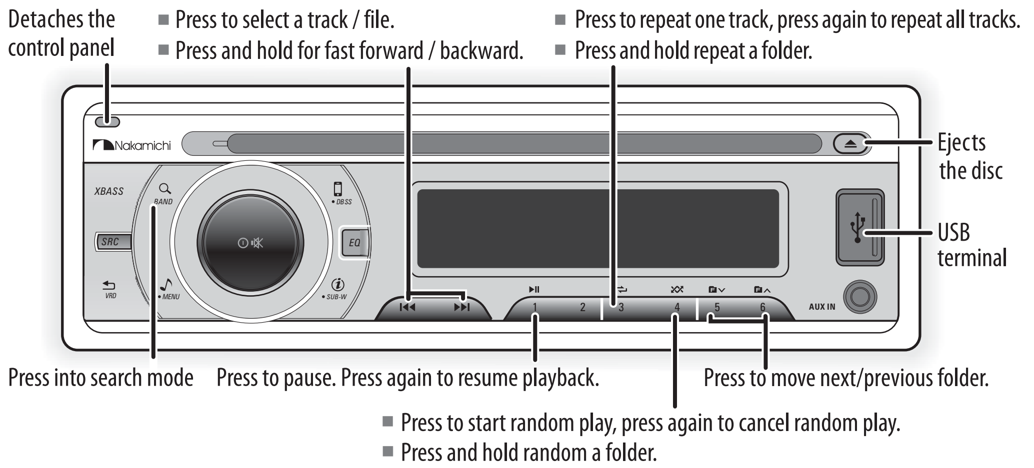
1 Press and hold ♪ ***MENU*** to enter into the **[MENU]** mode.

2 Press ⏮/⏭ repeatedly to select the item to be adjusted.

3 Turn the encoder volume knob to select a value / option.

Item	Selectable Setting
AUTO STORE ↵	Press the ⏻🔇 to access into Auto Store mode, the six strongest stations of the selected band are saved in preset channel automatically: FM1, FM2, FM3(1-6), AM1, AM2.
PTY↵ (Program Type)	Once into the PTY mode, press the ⏻🔇 get into program type item, and rotating encoder volume knob to selected category. ■ **Available Program Type:** POP M; ROCK M; EASY M; LIGHT M; CLASSICS; OTHER M; JAZZ M; COUNTRY; NATION M; OLDIES M; FOLK M; A-TEST; ALARM; NEWS; AFFAIRS; INFO; SPORT; EDUCATE; DRAMA; CULTURE; SCIENCE; VARIED; WEATHER; FINANCE; CHILDREN; SOCIAL; RELIGION; PHONE IN; TRAVEL; LEISURE; DOCUMENT
AF (Alternate Frequencies)	■ ON: The unit will be searches for another station with stronger signal, but with the same program identification as the current station automatically. ■ OFF: Cancel
TA (Traffic Announcement)	■ ON: When there is traffic announcement, the unit switches to the tuner mode (regardless of the current mode) and begins to broadcast the announcemet on traffic conditions. When the trafficannouncement is over, it returns to the previous mode. ■ OFF: Traffic announcement does not cut in.
RDS On/Off	Turn On or Off the RDS function.
AREA	Select suitable country region of the radio: USA; LATIN; EUROPE; RUSSIA(Oirt); M-EAST; ASIA; JAPAN; AUST (Australia)
LOCAL SEEK	To receive more radio stations or only stations with strong signal, you can adjust the radio sensitivity.

Listening to a Disc/ USB/SD device



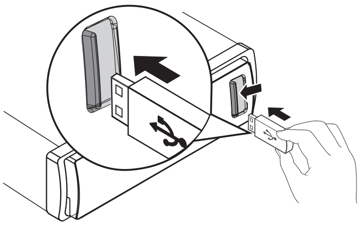
Playing a disc

Insert the disc into the Disc Slot with label side facing up, the unit will play starts automatically.

Playing a USB device

1 Slide the USB socket cover market [USB symbol] to the left.

2 Insert the USB device into the USB socket. The unit starts playing from the USB device automatically.



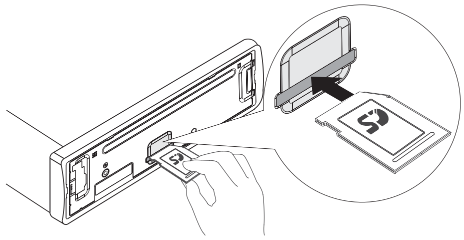
Playing a SD memory card

1 Press the Panel ⏏ (Release) button.

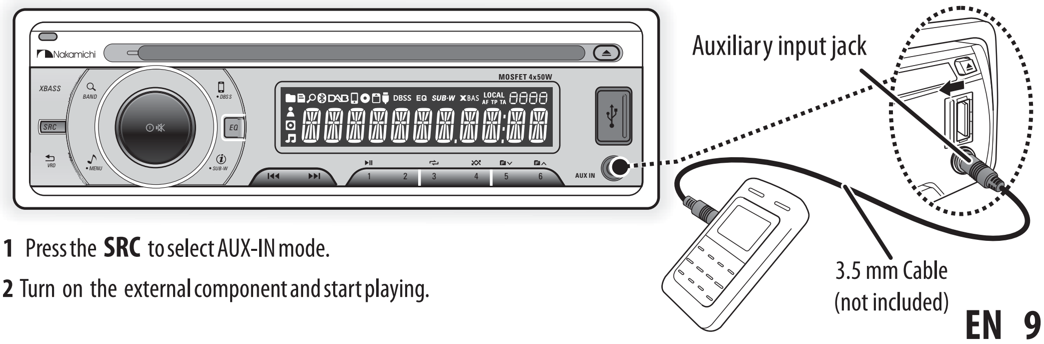
2 Push the left side of the panel rightward

3 Insert the card into the card slot.

4 Close the front panel, then the unit starts playing from the card automatically.



Listening to the other external components



1 Press the **SRC** to select AUX-IN mode.

2 Turn on the external component and start playing.

Remote Control Operation



When you press or hold the following button(s)...

Main unit	General operation
🔇	Turn mute or restore volume.
⏻	Press turn the unit on or off.
VOL +	Press increase the volume.
− VOL	Press decrease the volume.
⏮/⏭	■ Under Radio mode to enter into the Auto Seek mode, press and hold to enter into the Manual Seek mode. ■ Under Media playback mode to skip track / file, press and hold to fast forward / backward.
SRC	Select the available sources (Radio, Disc, USB, SD or Aux-In), if the power is turned on.
AUDIO	Press to access into the Audio Menu mode.

Product Information

General

Power Supply: 12V DC (10.5-14.4V), negative ground

Fuse: 15A

Suitable Speaker Impedance: 4 -8Ω

Aux-In level: 500mV

Audio Section

Maximum Power Output: Mosfet 50W x 4 Channels

Continous Power Output: 24W x 4 RMS

Pre-AMP Output Voltage: 5 V

Subwoofer Output Voltage: 5 V（Subwoof Vol Max=12)

FM tuner section

Frequency Range: 87.5 - 108MHz

Usable Sensitivity: Better than 15dB at S/N 30dB

AM tuner section

Frequency Range: 522 - 1620KHz

Usable Sensitivity: Better than 45dB at S/N 26dB

USB devices

USB Flash Memory: USB 1.1 & 2.0 Compatible

Memory Card

Support type of memory card: SD/SDHC

About Audio file

- USB or memory file system: FAT16, FAT32
- MP3/WMA bit rate: 32-320kbps and varible bit rate
- MP3 sampling frequencies: 8-48kHz
- WMA sampling frequencies: 32kHz, 44.1kHz, 48kHz
- ID3 tag v1.0 or later

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